



U.S. DEPARTMENT OF
ENERGY

OFFICE OF
**ENVIRONMENTAL
MANAGEMENT**

West Valley Demonstration Project

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***Main Plant Process Building (MPPB)
Deactivation and Demolition Approach and Status***

**Quarterly Public Meeting
February 24, 2021**

The health and safety of our employees, the public and the environment remain our top priority.

MPPB Deactivation/Demolition Overview

Presentation Overview:

- Build upon QPM presentations provided over the past several years, addressing planned approach for MPPB demolition to maintain worker safety and protection of human health and the environment
- Revisit key points provided in the November 2020 QPM relative to:
 - Specific measures to be implemented during MPPB demolition to minimize the potential for release and ensure worker and public safety
- Summarize current status of MPPB deactivation, removal of radiological materials, and air modeling results
- The next two briefings to be presented tonight provide additional details on two aspects critical to safe and protective MPPB demolition:
 - MPPB characterization, and
 - Air monitoring approach

MPPB Deactivation/Demolition Overview

Approach for MPPB demolition:

- DOE plans to commence demolition of the Main Plant Process Building (MPPB) at the West Valley Demonstration Project (WVDP) this year.
- Worker and community safety is DOE's top priority. The demolition of the MPPB will reduce environmental risks from historic site activities, and the overall footprint of WVDP. It will also allow for the next phase of cleanup to continue.
- The approach to MPPB demolition is safe, compliant and will be performed in a manner that will ensure the protection of workers, the public, and the environment. The approach to MPPB demolition incorporates best practices and lessons learned from across the DOE complex including the use of deliberately planned and sequenced demolition and implementation of robust work controls.

Planning and preparation for MPPB open-air demolition has been ongoing for over two decades; worker/public safety and compliance are foremost in planning efforts.

MPPB Deactivation/Demolition Overview

The WVDP has performed MPPB deactivation for over the past two decades in preparation for the safe open-air demolition of the MPPB

Since the 1990's:

- More than 7 MILES of contaminated piping and 50 TONS of contaminated equipment and debris have been removed from the MPPB
- This has REDUCED the building's total inventory of radiologically contaminated material by 98%



By safely reducing the amount of radioactively contaminated material by 98%, it has been determined the MPPB can now be demolished via the open air approach which has been successfully utilized for many other buildings on the WVDP site.

MPPB Deactivation/Demolition Overview

- The WVDP deactivation/demolition approach:
 - Ensures the protection of workers, the public, and the environment and is in full compliance with all regulatory requirements.
 - Incorporates best practices and lessons learned from WVDP and across the DOE complex including:
 - the rate and sequence of the demolition
 - the use of engineered and robust safety controls including onsite and off-site monitoring, water management, waste management, and personal protective equipment to protect workers, the public, and the environment

MPPB Deactivation/Demolition Overview

- WVDP always strives to be well under the minimum standards for radiological emissions, thereby ensuring both worker and public protection:
 - As Low as Reasonably Achievable (ALARA) principles are employed and remain an important part of the implementation approach. This means the site aims to mitigate any and all risk to any extent possible.
 - The estimated maximum dose to the maximally exposed offsite individual (member of the public) from demolition of MPPB is 0.043 mrem, more than 200 times below the regulatory limit.
 - For perspective, the average person receives approximately 300 mrem from naturally occurring sources.
 - The WVDP annual dose from all pathways to a maximally exposed offsite individual is typically under 0.5 mrem/year.

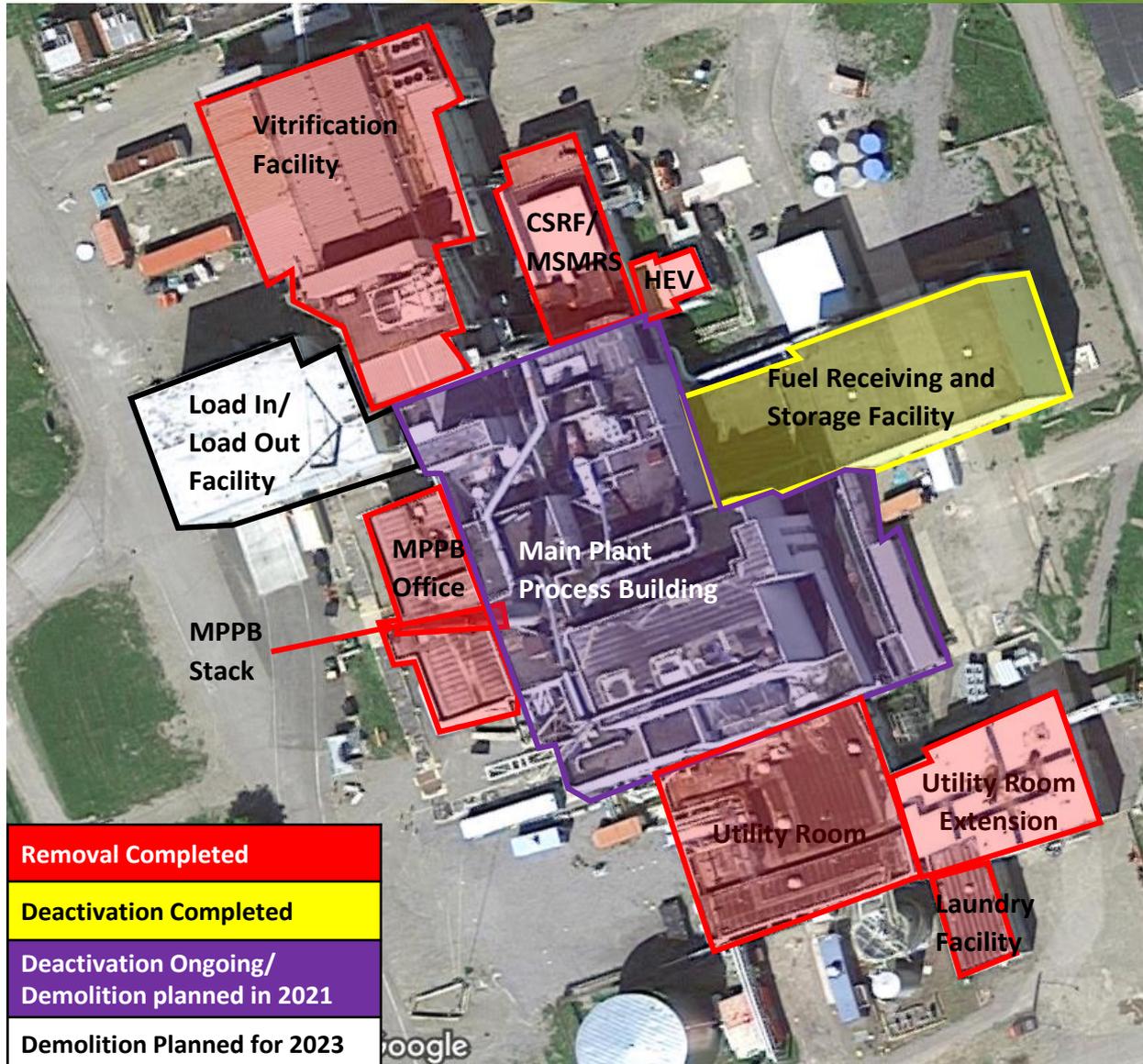
MPPB Deactivation/Demolition Overview

- The MPPB demolition project will maintain strict compliance with all regulatory requirements for the protection of human health and the environment, including all environmental permit requirements for air and surface water discharges.
 - Predictive modeling has been utilized to estimate potential onsite dose to workers and off-site dose to the public, to confirm that doses remain in compliance with standards and regulations.
 - Coordination with the U.S. Environmental Protection Agency to ensure compliance with air permitting regulations has been ongoing for over five years and will continue throughout the demolition project.

Safety is Our Top Priority

- WVDP has been working with the EPA for several years on plans to demolish the MPPB in a manner that ensures public protection and meets EPA regulatory requirements.
- WVDP is confident in the safety of the proposed demolition plan and will remain in strict compliance with all state and federal regulatory guidelines and safety precautions.
- WVDP has done extensive calculations to ensure all demolition activities will remain well within stated regulatory requirements.
- Monitoring by professionally trained radiation technicians will ensure all work remains protective of worker safety, the public and environment.

WVDP Deactivation and Demolition Status



MPPB Deactivation Status

- Work has been ongoing for over two decades to remove materials and contamination from the MPPB
- Deactivation is “complete” for an area when the following is accomplished:
 - Hazardous materials have been removed, including accessible asbestos containing material
 - Piping and equipment has been removal
 - Mechanical and electrical isolations performed
 - Penetrations stabilized or fixed
 - Decontamination is complete
 - Characterization is complete
- To date, deactivation is complete in all MPPB areas except for:
 - Product Purification Cell-South
 - Ventilation Wash Room
 - Off-Gas Cell
 - Acid Recovery Cell



Extraction Cell-1 Before Deactivation



Extraction Cell-1 After Deactivation



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Radiological Material Removal Examples

(from previous Public Meetings)

http://www.chbww.com/Citizen_Task_Force.htm

http://www.chbww.com/Quarterly_Public_Meetings.htm

Deactivation and Source Term Removal (2015)



Sample Storage Cell manned entry for decontamination

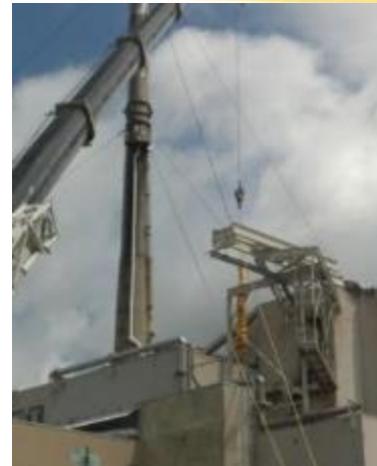
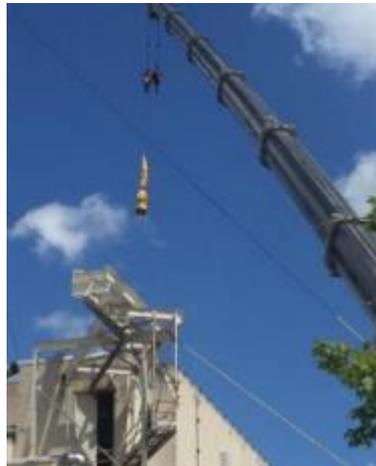


Liquid Waste Cell hatch removal and view of cell after hatch cut



XCR during and after cleanup

Deactivation and Source Term Removal (2015 and 2016)



Off-Gas Cell Vessels 6D-6, 6E-3, and 7E-7 removal from MPPB



Off-Gas Cell embedded wall penetration stabilization



OGBR floor and niche grouting

Deactivation and Source Term Removal (2017)



First manned entry into Extraction Cell 1 to confirm radiological conditions and commence stabilization



Extraction Cell 1 before and after stabilization (fixative)



Deactivation and Source Term Removal (2018)



South Ledge before decontamination
Chemical Cell Process Crane Room



South Ledge after decontamination



Vent Exhaust Cell Filter Room
before and after fixative



MPPB Deactivation/Demolition Summary

- Critical elements of MPPB demolition approach:
 - Radiological contamination removal has been aggressive and effective
 - Some work remains, to include decontamination in PPC-S utilizing Nitrocision® technology (briefed in the November 2020 QPM)
 - Areas thoroughly characterized to support final work plans
 - Radioactive materials that remain are being stabilized to minimize the potential for release
 - Foaming of penetrations
 - Applying fixative to surface areas
 - Grouting floors that remain
 - A demolition boundary has been established based upon predictive modeling to maintain worker doses are As Low As Reasonably Achievable and well under regulatory limits
 - On-site monitoring maintains worker protection
 - Predictive air dispersion modeling demonstrates compliance with EPA standards; estimated public dose is significantly lower than regulatory standards
 - Network of off-site air monitors, in place prior to and throughout Vitrification Facility demolition, have been demonstrated to effectively monitor public dose

WVDP continues to coordinate with regulatory agencies and will be providing characterization and dose modeling information as it becomes final.

Verification of Readiness

- A thorough readiness review process, to include contractor-led as well as DOE-led reviews, will confirm readiness for safe and compliant work execution, to verify:
 - Equipment is available and tested for demolition, water management, waste disposition, personnel and environmental monitoring.
 - Personnel are trained and qualified
 - Procedures include necessary requirements to minimize potential for release and ensure compliance (e.g., waste pile management, use of water sprays, water containment and sampling, radiological controls surveys, restrictions during inclement weather, etc.)

